

**Remarks/Arguments:**

Claims 1-20 have been objected to as including reference characters which are not enclosed within parentheses. Applicant's representative does not understand the objection. Applicant's representative does not see reference characters within the claims. The Examiner is respectfully requested to provide more information to Applicant's representative so that the objection may be addressed. A telephone call would also be welcomed.

Claims 1, 6, 11, 15, 19 and 20 have been rejected under 35 U.S.C. § 112, second paragraph. In response to the questions posed in the Official Action, the Applicant wishes to note that claim 1, the feature amount  $fA_{2j}$  is extracted by simply applying the matrix  $AF$  to the vector  $A_{2j}$  as shown by equation 12 in the specification. Regarding claims 11, 15, 19 and 20, maximizing between-class scatter and minimizing within-class scatter of the patterns  $A_1$  and  $B_1$  is performed simultaneously. Withdrawal of the rejection is respectfully requested.

Claims 1, 6, 11, 15, 19 and 20 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Belhumeur. The rejection is respectfully traversed for the reasons set forth below.

Generally, between-class scatter means scatter between different objects, while within-class scatter means scatter of sample aggregates of the same object. For example, a video image and a photo image of the same person are different objects.

In Belhumeur, an assumption is adopted that all samples of all persons are derived from a consistent distribution. Therefore, the within-class scatter is represented by one scatter matrix  $C_w$  and the between-class scatter is represented by one scatter matrix  $C_b$ . By contrast, Applicant claim 1 includes the feature of:

...maximizing between-class scatter with respect to  
training pattern sets  $A_1$ ,  $B_1$  respectively...

Thus, in the present invention, two images to be matched are derived from different distributions of pattern sets  $A_1$  and  $B_1$ . For example, pattern sets  $B_1$  are

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image sets photographed five years ago and pattern sets A1 are photographed at present with the same image sets as pattern sets B1. Therefore, the between-class scatter of claim 1 includes between-class scatter in pattern sets A1, between-class scatter in pattern sets B1, and between-class scatter extending over pattern sets A1 and B1 (which corresponds to Cab - b in claims 2, 7, 12 and 16).

Thus, because claim 1 (and the other independent claims) are maximizing between-class scatter over different pattern sets, Applicant's claim 1 is necessarily different than Belhumeur which represents between-class scatter over a single matrix.

Accordingly, withdrawal of the rejection of Applicant's independent claims is respectfully requested.

Applicant's dependent claims include the feature of the respective independent claims from which they depend. Thus, Applicant's dependent claims are also patentable over the art of record.

Claims 21-26 are newly added. Each of these claims recited that the between-class scatter is for different objects in said pattern sets respectively. It is believed, however, that the between-class scatter in different sets is already implied from Applicant's independent claims.

In view of the arguments and newly added claims set forth above, the above-identified application is in condition for allowance which action is respectfully requested.

Respectfully submitted,

  
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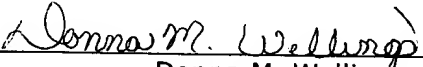
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